CONTENTS

Volume 11 Issue Nos. 1–8 (1990)

International Journal for
NUMERICAL METHODS IN FLUIDS

Issue No. 1, July

Evaluation of a Coupled Solution Approach for Fluid Flow Calculations in Body-fitted Co-ordinates: K. C. Karki and H. C. Mongia 1

Taylor–Least-squares Finite Element for Two-dimensional Advection-dominated Unsteady Advection–Diffusion Problems: N.-S. Park and J. A. Liggett 21

The Calculation of Incompressible Separated Turbulent Boundary Layers: A. Kogan and S. Migemi 39

Time-dependent Natural Convection in a Square Cavity: Application of a New Finite Volume Method: H. S. Mahdi and R. B. Kinney 57

Periodic Viscous Flow: a Bench-mark Problem: I. S. Goldberg, G. F. Carey, R. McLay and L. Phinney 87

Upwind Discretization of the Steady Navier–Stokes Equations: B. Koren 99

BOOK REVIEW 119

CONFERENCE DIARY 121

Issue No. 2, July

Convergence Studies with the Sandia Ocean Modelling System: D. E. Dietrich, P. J. Roache and M. G. Marietta 127

Free Surface Flow During the Filling of a Cylinder: Z. Abdullah and M. Salcudean 151

An Algorithm for Isentropic Flow: P. Glaister 169

The Effect of Using Non-orthogonal Boundary-fitted Grids for Solving the Shallow Water Equation: P. Nielsen and O. Skovgaard 177

Finite Volume Multigrid Prediction of Laminar Natural Convection: Bench-mark Solutions: M. Hortmann, M. Perić and G. Scheuerer 189

Simple Test Calculations Concerning Finite Element Applications to Numerical Weather Prediction: J. Steppeler 209

A Comprehensive Analysis of the Viscous Incompressible Flow in Quasi-three-dimensional Aerofoil Cascades: E. A. Baskharone and D. R. McArthur 227

The Numerical Solution of the Laminar Flow in A Constricted Channel at Moderately High Reynolds Number Using Newton Iteration: R. Hunt 247

CONFERENCE DIARY 261

Indexed or abstracted by 'Applied Mechanics Reviews', 'Boundary Elements Abstracts', 'Cambridge Scientific Abstracts', 'CITIS—Civil Engineering Abstracts', 'Compumath Citation Index', 'Current Contents', 'Engineering Index Inc', 'Eng. Societies Library', 'BHRA Fluid Engineering Centre', 'Geographical Abstracts: Physical Geography', 'Geological Abstracts', 'INSPEC', 'Mathematical Reviews', 'Mechanics', 'Newsletter of Eng. Analysis Software', 'SCISEARCH Database', 'Shock & Vibration Digest' and 'Zentralblatt für Mathematik'.

Issue No. 3, August

Symbolic Computation of Flow in a Rotating Pipe: H. Raszillier, I. Guiasu and F. Durst 267

A Formal Finite Element Approach for Open Boundaries in Transport and Diffusion Ground-water Problems: F. Padilla, M. Leclerc and J.-P. Villeneuve 287

Diffusion Flame Analysis of an Afterburner as a Function of the Air–Fuel Ratio: S.-H. Chuang and J.-S. Jiang 303

Interactive Vortex Shedding from a Pair of Circular Cylinders in a Transverse Arrangement: K.-S. Chang and C.-J. Song 317

Finite Element Analysis of Convective Heat Transfer in Porous Media: R. Rajamani, C. Srinivas and K. N. Seetharamu 331

Locally Mass-conserving Taylor–Hood Elements for Two- and Three-dimensional Flow: R. W. Thatcher 341

ANNOUNCEMENT 360

Issue No. 4, September

Computing Axisymmetric, Laminar Internal Flows: R. W. Derksen 361

Numerical Solution of the Steady Incompressible Navier–Stokes Equations for the Flow Past a Sphere by a Multigrid Defect Correction Technique: Gh. Juncu and R. Mihail 379

Finite Element Analysis of Creeping Flows Using Marker Particles: T. Shiojima, Y. Shimazaki and H. Daiguji 397

Non-oscillatory Shock-capturing Finite Element Methods for the One-dimensional Compressible Euler Equations: J. Y. Yang, F.-S. Lien and C.-A. Hsu 405

Fourier Analysis of the Eulerian–Lagrangian Least Squares Collocation Method: L. R. Bentley, A. Aldama and G. F. Pinder 427

ANNOUNCEMENTS 445

Special Issue

Selected papers from the International Conference on Computational Methods in Flow Analysis, Okayama, Japan 5–8 September 1988.

Issue No. 5, October

Two-dimensional Sloshing Analysis by Lagrangrian Finite Element Method: T. Okamoto and M. Kawahara 453

GSMAC Finite Element Method for Unsteady Incompressible Navier–Stokes Equations at High Reynolds Numbers: T. Tanahashi, H. Okanaga and T. Saito 479

A Fractional-step Taylor–Galerkin Method for Unsteady Incompressible Flows: H. Laval and L. Quartapelle 501

Solution Techniques for the Vorticity–StreamFunction Formulation of Two-dimensional Unsteady Incompressible Flows: T. E. Tezduyar, J. Liou, D. K. Ganjoo and M. Behr 515

Computational Experiments on Interactions Between Numerical and Physical Instabilities: J. P. Choquin and S. Huberson 541

Infinite Elements for Water Wave Radiation and Scattering: H. S. Chen 555

On the Quality of Viscoelastic Flow Solutions: An Adaptive Refinement Study of a Newtonian and a Maxwell Fluid: R. R. Rao and B. Finlayson 571

On the Theory of Semi-implicit Projection Methods for Viscous Incompressible Flow and Its Implementation via a Finite Element Method that also Introduces a Nearly Consistent Mass Matrix: Part 1: Theory: P. M. Gresho 587

On the Theory of Semi-implicit Projection Methods for Viscous Incompressible Flow and Its Implementation via a Finite Element Method that Introduces a Nearly Consistent Mass Matrix. Part 2: Implementation: P. M. Gresho and S. T. Chan 621

Finite Element Solution of the Navier–Stokes Equations by a Velocity–Vorticity Method: G. Guevremont, W. G. Habashi and M. M. Hafez 661

Simulation of Turbulence with Transient Mean: C. Bègue, B. Cardot, B. Parès and O. Pironneau 677

Special Issue

Selected papers from the 7th International Conference on Finite Elements in Flow Problems, University of Alabama, Huntsville, 3–7 April 1989.

Issue No. 6, October

Finite Element Analysis of Confined Turbulent Swirling Flows: A. C. Benim 697

Compressible Viscous Flow Calculations using Compatible Finite Element Approximations: M. O. Bristeau, R. Glowinski, L. Dutto, J. Périaux and G. Rogé 719

Upwind Adaptive Finite Element Investigations of the Two-dimensional Reactive Interaction of Supersonic Gaseous Jets: D. Chargy, A. Dervieux and B. Larrouturou 751

Finite Element Formulation for Transport Equations in a Mixed Co-ordinate System: an Application to Determine Temperature Effects on the Single-well Chemical Tracer Test: Y. J. Park, H. A. Deans and T. E. Tezduyar 769

Equilibrium and Stability of Tokamaks: W. Kerner 791

Uncoupled Finite Element Solution of Biharmonic Problems for Vector Potentials: V. Ruas and L. Quartapelle 811

Discretization of Incompressible Vorticity–Velocity Equations on Triangular Meshes: S. Choudhury and R. A. Nicolaides 823

Godunov-mixed Methods for Immiscible Displacement: C. N. Dawson 835

Finite Element Solution of Flow Between Eccentric Cylinders with Viscous Dissipation: J. H. C. de Araujo, V. Raus and A. S. Vargas 849

Iterative Adaptive Implicit–Explicit Methods for Flow Problems: J. Liou and T. E. Tezduyar 867

Three-dimensional Eddy Current Calculation in Multiply Connected Regions by Using the Magnetic Vector Potential: T. Morisue 881

Finite Element Methods for One-dimensional Combustion Problems: J. I. Ramos 893

Finite Difference and Finite Element Methods for MHD Channel Flows: J. I. Ramos and N. S. Winowich 907

A Technique for Analysing Finite Element Methods for Viscous Incompressible Flow: R. Stenberg 935

ANNOUNCEMENT 949

Issue No. 7, November

Introduction 951

Announcement—Open Boundary Condition (OBC) Minisymposium 952

A Test Problem for Outflow Boundary Conditions—Flow Over a Backward-Facing Step: D. K. Gartling 953

Open Boundary Condition Symposium Benchmark Solutions: Stratified Flow Over a Backward-facing Step: J. M. Leone Jr. 969

Transient Flow Past a Circular Cylinder: a Benchmark Solution: M. S. Engelman and M.-A. Jamnia 985

The Thermoconvective Instability of Plane Poiseuille Flow Heated from Below: a Proposed Benchmark Solution for Open Boundary Flows: G. Evans and S. Paolucci 1001

An Efficient Algorithm for Strain History Tracking in Finite Element Computations of Non-Newtonian Fluids with Integral Constitutive Equations: X.-L. Luo and E. Mitsoulis 1015

A Chebyshev Matrix Method for the Spatial Modes of the ORR–Sommerfeld Equation: G. Danabasoglu and S. Biringen 1033

Issue No. 8, December

An Upwind Scheme for the Three-dimensional Boundary Layer Equations: L. J. Johnston 1043

Global Convergence of Inexact Newton Methods for Transonic Flow: D. P. Young, R. G. Melvin, M. B. Bieterman, F. T. Johnson and S. S. Samant 1075

Data Assimilation for Non-linear Tidal Models: A. W. Heemink and H. Kloosterhuis 1097

Numerical Studies of Fluid Flow through Tubes with Double Constrictions: T. S. Lee 1113

Author Index 1127

Key Word Index 1128

Table of Contents, Volume 11 iii